

Solvents and sterilants regulated

With the passing of Ontario regulations 717/94 and 718/94, the province has set controls on virtually all of the substances that destroy the ozone layer.

Earlier this year, the government moved to control halons used in fire extinguishers and chlorofluorocarbons (CFCs) used as refrigerants and in air conditioners, including those in automobiles. Prior to that Ontario banned the production and sale of aerosols and plastic and packaging foam as well as rigid insulation foam containing CFCs.

The two new regulations phase out the production, use and transfer of solvents and sterilants containing CFCs, halons, hydrochlorofluorocarbons (HCFCs), carbon tetrachloride and methyl chloroform.

BACKGROUND

The ozone layer is located in the upper atmosphere some 15 to 50 kilometres above the earth and shields it from the sun's ultraviolet rays. Ultraviolet radiation has been linked to skin cancer and eye cataracts. It is known to harm animals, crops and materials such as wood and plastic.

Scientific evidence has shown the ozone layer is being destroyed at an alarming rate by specific man-made chemicals. A total of 137 countries including Canada have now signed the Montreal Protocol which promotes the end of substances such as CFCs, halons and HCFCs that attack the ozone layer.

Ontario was the first province to regulate substances which destroy the ozone layer. With regulations 717/94 and 718/94 in place, Ontario today has the most comprehensive program in Canada to control substances which attack the ozone layer.

SOLVENTS

Ontario Regulation 717/94 bans the production of solvents containing Class 1 and Class 2 ozone-depleting substances (ODS) as of Jan. 1, 1996 and Jan. 1, 2000 respectively.

Class 1 ozone-depleting substances destroy the ozone layer more quickly and last longer in the atmosphere than Class 2 substances. In both cases, the ozone-destroying process caused by releasing CFCs, halons and HCFCs lasts 40 to more than 500 years. The regulation also:

- bans the discharge, use or transfer of solvents containing specific Class 1 and Class 2 ODS after July 1, 1996 and Jan. 1, 2000, respectively;
- bans the storage of solvents containing Class 1 and Class 2 ODS after July 1, 1998 and Jan. 1, 2002, respectively;
- requires a report for solvents containing Class 1 ODS stored after July 1, 1996, and solvents containing Class 2 ODS stored after Jan. 1, 2000, to be available on request by the Ministry of Environment and Energy;
- exempts solvents containing Class 1 and 2 ODS which are used for research on substances which destroy the ozone layer or which are converted to another substance which does not harm the ozone layer.

This regulation overrides conditions included in existing certificates of approval for solvents containing Class 1 and 2 ODS.

WHERE THESE SOLVENTS ARE USED

Generally speaking industries use these solvents in a variety of cleaning processes, including dry cleaning. About 85 per cent of the methyl chloroform and 97 per cent of the CFC-113 used in Ontario are used by the electronics and metal industries for precision and general cleaning. These solvents are also used in the production of adhesives, paints and inks.

In Ontario, an estimated 5,000 tonnes of methyl chloroform, 160 tonnes of CFCs and 214 tonnes of carbon tetrachloride were used in solvents in 1992.

There are alternative cleaning chemicals and technologies which companies such as IBM Canada Ltd., Northern Telecom Ltd., Litton Systems Canada Ltd., Xerox Canada Ltd. and 3M Canada Inc. already use.

STERILANTS

Ontario Regulation 718/94 prohibits the production, use, discharge and transfer of sterilants containing specific Class 1 and Class 2 ozone-depleting substances after Jan. 1, 1996 and Jan. 1, 2000 respectively. Further, the regulation:

- prohibits the storage of sterilants containing Class 1 and Class 2 ODS after Jan. 1, 1998 and Jan. 1, 2002 respectively;
- requires a report for sterilants containing Class 1 ODS stored after Jan. 1, 1996 and sterilants containing Class 2 ODS stored after Jan. 1, 2000 to be available on request by the Ministry of Environment and Energy;
- exempts sterilants containing Class 1 and 2 ODS which are used for research on substances which destroy the ozone layer or which are converted to another substance which is not a Class 1 or 2 ODS;

This regulation overrides conditions included in existing certificates of approval for sterilants containing Class 1 and 2 ODS.

WHERE THESE STERILANTS ARE USED

These sterilants are used mainly in hospitals to sterilize medical devices. The sterilant is a mixture of 12 per cent ethylene oxide and 88 per cent CFC-12, and is usually referred to as 12/88.

Neither CFC-12 nor the equipment which sterilizes instruments is made in Canada.

About 120 tonnes of CFCs were used in Ontario hospitals in 1993 for sterilizing medical devices. In addition to hospitals, which account for almost 98 per cent of the total number of sterilizers in the province, pharmaceutical companies, private and provincial medical laboratories and a veterinary hospital in Guelph also use sterilants containing substances which deplete the ozone layer. There are about 360 sterilizer units in Ontario which use the ethylene oxide and CFC-12 mixture, 12/88.

There are alternatives to these sterilants which some hospitals in Ontario now use. Further, the Ontario Hospital Association and the Canadian Hospital Association are looking into alternative technologies for sterilizing medical devices.

